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Complete utilization of raw wood materials

A variety of terms is used to describe complete utilization of the material from the forest. Professor Young described the complete tree concept as the entire tree from roots to leaves. The wood and bark above the ground has been referred to as the full tree or the whole tree. The term forest biomass refers to all woody materials in a stand, regardless of size or species.

By whatever terminology, the goal for any utilization system should be to use all the harvested stem in the way that provides the greatest net benefits for the producer and consumer. Any impact on the soil nutrient balance needs to be considered. In many cases, systems that include harvesting roots, branches, saplings, and brush may lack economic justification and thus will not be implemented. However, in special situations, use of all tree components can prove economically feasible. For example, roots have been harvested commercially in northern Europe and the United States. Equipment for pulling and processing roots has been developed for used principally to extract resin for chemicals.

As presently practiced, whole-tree utilization generally involves the entire stem to a small top diameter of 2-4 inches. Utilization of the whole stem can be accomplished in several ways. The tree can be cut in the woods to the lengths and log qualities suitable for sawlogs, veneer blocks, and pulpwood. Or the full-length stem can be transported to the mill where it is cut to length, segregated, and directed to its best use. A third possibility is to chip the entire tree at the logging site and transport chips rather than logs to the mill. Some branched not broken off during felling, bunching, and hauling are also utilized when stems are chipped in the woods.

第二題(50 分)

The tropical rain forest

Developing nations in Latin America, Southeast Asia, and Africa have the fastest-growing populations but not enough food, fuel, and lumber. Of necessity, they turn to their forests for growth-sustaining resources. Most of the forests may disappear within our lifetime. The possibility induces the most outcries from highly developed nations—which happen to use most of the world's resources, including forest products.

Tropical rain forests have the greatest variety and numbers of insects, and the world's largest ones. They are home to the most species of birds and to plants with the largest flowers. Living in the forest canopy and understory are monkeys, tapirs, and jaguars in South America and apes, okapi, and leopards in Africa. Massive vines twist around trees. Orchids, mosses, lichens, and other organisms grow on branches, absorbing minerals that rains deliver to them. Entire communities of microbes, insects, spiders, and amphibians live, breed, and die in small pools of water that collect in furled leaves.

Their disappearance will have reactions through human life. And so conservation biologists rightly blame the mass extinction, the assaults on species diversity, and the depletion of much of the world's genetic reservoir. Yet something else is going on here. Too many of us grow uneasy when we pass through destroyed forests in our own country. Is it because we are losing the comfort of our heritage—a connection with our evolutionary past? Many millions of years ago, our earliest primate ancestors moved into the trees of tropical forests. Through countless generations, their nervous and sensory systems evolved and became highly responsive to information-rich, arboreal worlds.

Does our neural wiring still resonate with rustling leaves, with shafts of light and mosaic shadows? Are we innately attuned to the forests of Eden—or have time and change buried recognition of home?

**【Hints (translation not required): tapir-獾 / jaguar-美洲豹 / okapi-一種非洲鹿 / leopard-花豹 / microbes-微生物 / Eden-伊甸園】**